UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/945,311	08/30/2001	Takahiko Hasegawa	FY.17226US0A	2052

20995 7590 11/24/2004

KNOBBE MARTENS OLSON & BEAR LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614

EXAMINER	
ROSENBERG, LAURA B	

ART UNIT	PAPER NUMBER
3616	

DATE MAILED: 11/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/945,311	HASEGAWA, TAKAHIKO	
	Examiner	Art Unit	
	Laura B Rosenberg	3616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14,16-26,29-32,35 and 36* is/are pending in the application.

4a) Of the above claim(s) *10-12* is/are withdrawn from consideration.

5)☒ Claim(s) *7-9,25,26,29-32 and 36* is/are allowed.

6)☒ Claim(s) *1-6,13,14,16-24 and 35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 07 September 2004 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 35 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, it is unclear if the step of "decreasing an output of said motive member" is included in the subsequent grouping of steps, listed in the alternative, as "returning said output to a normal output level after said output has been decreased, returning said output to normal over a period of time, or returning said output to normal in a series of increments." The examiner suggests the following as a way to rephrase this portion of claim 35:

"decreasing an output of said motive member, and returning said output to a normal output level after said output has been decreased, over a period of time, or in a series of increments."

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tzanev (6,268,794) in view of Bohn (6,336,648). In regards to claim 1, Tzanev discloses a motorcycle (#11) comprising a frame (not labeled; figure 2), a front wheel (not labeled; figure 2) steerably attached to the frame, a rear wheel (not labeled; figure 2) attached to the frame, a motive member (#11A) mounted to the frame and connected to the rear wheel (motorcycles are rear-wheel drive), a control unit (#12) electrically connected to the motive member and comprising an outer housing (#13), and an accelerometer (#40) mounted within the outer housing and electrically communicating with the control unit (best seen in figure 1). The accelerometer is adapted to output an output signal that varies with a leaning angle of the motorcycle when turning (column 4, line 55-column 6, line 12), the control unit being adapted to compare the output signal to a threshold signal range and to decrease the output of the motive member if the output signal is outside the threshold signal range (column 7, line 64-column 8, line 7). Tzanev does not disclose the accelerometer being configured to detect acceleration in a vertical direction and a horizontal direction relative to the frame. Bohn teaches a motorcycle (column 1, lines 13-14) comprising a frame, a front wheel steerably attached to the frame, a rear wheel attached to the frame, and a motive member mounted to the frame

and connected to at least one of the front wheel and the rear wheel (all of these features are inherent in a motorcycle). Bohn further teaches an accelerometer (#14) configured to detect acceleration in a vertical direction and a horizontal direction relative to the frame (column 5, lines 22-36). It would have been obvious to one skilled in the art at the time that the invention was made to modify the accelerometer of Tzanev such that it comprised an ability to detect acceleration in a vertical direction and a horizontal direction as claimed in view of the teachings of Bohn so as to accurately sense the tilt, forward velocity, and vertical acceleration of the motorcycle (Bohn: column 5, lines 22-36), thus allowing for a more controlled response to these conditions.

In regards to claim 2, Tzanev discloses the accelerometer (#40) being mounted generally "horizontally". The examiner notes that the horizontal direction is not claimed as being relative to a particular direction or view of the vehicle. Thus, the accelerometer would be mounted generally horizontally, depending upon the intended viewpoint.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tzanev (6,268,794) in view of Bohn (6,336,648), and further in view of Schiffmann (6,192,305). In regards to claim 3, Tzanev does not disclose the output signal varying as a mathematical sine of the leaning angle. Schiffmann teaches a wheeled vehicle comprising a control unit (#22) and accelerometers (#12-20) electrically communicating with the control unit (column 5, lines 3-4). The accelerometers output a signal that varies as a mathematical sine of a leaning angle (current roll angle Φ; column 7, lines 7-33). It would have been obvious to one skilled in the art at the time that the invention

was made to modify the accelerometer of Tzanev such that it comprised an output signal that varies as a mathematical sine of the leaning angle as claimed in view of the teachings of Schiffmann so as to provide a reliable, low-cost rollover sensor that more accurately predicts an overturn condition of a vehicle (Schiffmann: column 1, lines 54-67).

7. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blosch (6,428,118) in view of Fritz (3,882,957). In regards to claim 4, Blosch discloses a wheeled vehicle (best seen in figure 3) comprising a frame (#3), a front wheel (#1) steerably attached to the frame, a rear wheel (#1) attached to the frame, a motive member (#105) mounted to the frame and connected to at least one of the front wheel and the rear wheel (not shown), a control unit (#104, 104a, 104b) electrically connected to the motive member (column 5, lines 50-52), and an accelerometer (#101-103) electrically communicating with the control unit (column 4, lines 26-37, 49-67). The accelerometer is adapted to output a signal that varies with a rate of forward deceleration or acceleration (column 4, lines 26-31; acceleration and deceleration being measured in the same way), the control unit is adapted to compare the signal to a "collision threshold signal" (column 5, lines 2-17; column 5, line 66-column 6, line 7), and the control unit is further adapted to reduce the output of, and in turn disable, the motive member if the signal exceeds the collision threshold signal (column 5, lines 58-65). Blosch does not disclose the control unit comprising an outer housing and the accelerometer mounted within the outer housing. Fritz teaches a wheeled vehicle

comprising a motive member (within compartment #12), a control unit (#35) electrically connected to the motive member and comprising an outer housing (#13), and all of the components of a fuel and electrical cutoff means mounted within the outer housing (column 3, lines 16-18; best seen in figures 1, 2). It would have been obvious to one skilled in the art at the time that the invention was made to modify the control unit of Blosch such that it comprised an outer housing with an accelerometer mounted within the outer housing as claimed in view of the teachings of Fritz so as to provide the convenience of mounting all of the components of the fuel and electrical cutoff means within the same housing (Fritz: column 3, lines 16-18).

In regards to claim 5, Blosch discloses the accelerometer (#101-103) mounted generally horizontally (best seen in figures 1, 3).

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blosch (6,428,118) in view of Fritz (3,882,957), further in view of Carlson et al. (6,417,767). In regards to claim 6, Blosch does not disclose a formula used to determine the variation of the signal in relation to the pitching angle. Carlson et al. teach a wheeled vehicle (#24) comprising a control unit (#20) and an accelerometer (#16) electrically communicating with the control unit (best seen in figure 1). The accelerometer outputs a signal that varies with the rate of forward deceleration or acceleration, the control unit comparing the signal to a threshold signal (column 4, lines 19-22) and initiating a warning indicator (#14) to indicate an urgent deceleration or acceleration condition. The signal varies as a mathematical sine of the pitching angle of the vehicle cased by rapid

deceleration (column 4, lines 27-35, 46-59; column 5, lines 24-36). It would have been obvious to one skilled in the art at the time that the invention was made to modify the accelerometer of Blosch such that it comprised a signal that varies as a mathematical sine of the pitching angle as claimed in view of the teachings of Carlson et al. so as to provide a sensor system that is less prone to false triggering because the acceleration and deceleration values are corrected for gravitational forces acting on the vehicle (Carlson et al.: column 1, line 65-column 2, line 3).

9. Claims 13, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki (5,033,428) in view of Saito et al. (5,758,301), further in view of Bohn (6,336,648), and further in view of Tzanev (6,268,794). In regards to claim 13, Sasaki discloses a method of controlling operations of a vehicle during an accident, the vehicle having an electronic control unit (#1, 700) that comprises a control circuit (best seen in figure 2 within dashed lines) that is in electrical communication with an accelerometer (#15, 800), the electronic control unit adapted to control operation of a motive member (#100) and a fuel pump (#18, 300). The method comprises sensing an output signal from the accelerometer, which varies in accordance with a leaning angle of the vehicle during turning, comparing the output signal with a preset threshold level, and if the output signal exceeds the preset threshold level, then disabling the motive member (column 3, lines 26-36). Sasaki does not disclose that the accelerometer is a semiconductor accelerometer. Saito et al. teach a method of controlling operations of a vehicle during an accident, the vehicle having a semiconductor accelerometer (#10),

and the method comprising sensing an output signal from the accelerometer, comparing the output signal with a preset threshold level, and if the output signal exceeds the preset threshold level, then operating an occupant restraint system (column 1, line 66-column 2, line 10). It would have been obvious to one skilled in the art at the time that the invention was made to modify the accelerometer of Sasaki such that it comprised a semiconductor as claimed in view of the teachings of Saito et al. so as to accurately detect acceleration/deceleration in the event of an accident. Further, the examiner notes that in the absence of justification for the need for a semiconductor-type accelerometer instead of another type of accelerometer, the use of an equivalent accelerometer, such as that disclosed in the Sasaki reference, would have been an obvious modification. Sasaki also does not disclose an accelerometer configured to detect acceleration in both a vertical direction and horizontal direction transverse the forward direction of travel. Bohn teaches an accelerometer (#14) configured to detect acceleration in a vertical direction and a horizontal direction relative to the frame (column 5, lines 22-36). It would have been obvious to one skilled in the art at the time that the invention was made to modify the vehicle of Sasaki such that it comprised an accelerometer configured to detect acceleration in a vertical direction as claimed in view of the teachings of Bohn so as to indicate the degree of roughness of the riding surface and counteract the initiation of a dive condition due to hard braking (Bohn: column 1, lines 11-18; column 5, lines 45-48). Tzanev teaches an accelerometer (#40) configured to detect acceleration in a transverse (lateral) horizontal direction relative to the forward direction of travel of the vehicle (column 1, lines 51-52). It would have been obvious to

one skilled in the art at the time that the invention was made to modify the vehicle of Sasaki such that it comprised an accelerometer configured to detect acceleration in a transverse horizontal direction as claimed in view of the teachings of Tzanev so as to detect lateral forces acting on the vehicle in order to more accurately sense and control a tip-over situation (Tzanev: column 1, lines 47-64).

In regards to claim 20, Sasaki discloses the motive member being disabled by interruption of ignition (#13, 900.

In regards to claim 21, Sasaki discloses the motive member being disabled by interruption of fuel injection (#18, 300).

10. Claims 14, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki (5,033,428) in view of Saito et al. (5,758,301), further in view of Bohn (6,336,648), and further in view of Tzanev (6,268,794), further in view of Reginold (4,856,613). In regards to claims 14 and 17, Sasaki discloses disabling a fuel pump (#18, 300) associated with a motive member (#100) if an output signal exceeds a preset threshold level. Sasaki does not disclose a preset period of time. Reginold teaches a method of controlling operations of a vehicle (#5) during an accident, the vehicle having an accelerometer (#40), and the method comprising sensing an output signal from the accelerometer, comparing the output signal with a preset threshold level, and if the output signal exceeds the preset threshold level, disabling a motive member (#11; column 3, lines 61-66). The motive member is only disabled if the output signal exceeds the preset threshold level for a preset period of time (#34; column 3, lines 35-

43). It would have been obvious to one skilled in the art at the time that the invention was made to modify the accelerometer of Sasaki such that it comprised a preset period of time as claimed in view of the teachings of Reginold so as to prevent disabling of the motive member when excessive acceleration/deceleration or tilt is present for only a short period of time, thus indicating that an unsafe driving condition is either not present or has already been corrected.

In regards to claim 16, Sasaki discloses the output signal being indicative of a leaning angle of the vehicle (column 2, lines 61-65; column 3, lines 26-29), the preset threshold level generally corresponding to a non-recoverable lean angle.

11. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki (5,033,428) in view of Saito et al. (5,758,301), further in view of Bohn (6,336,648), and further in view of Tzanev (6,268,794), further in view of Reginold (4,856,613), further in view of Carlson et al. (6,417,767). In regards to claims 18 and 19, Sasaki does not disclose the output signal being indicative of a deceleration rate with the preset threshold level corresponding to a rate of acceleration. Carlson et al. teach a method of controlling operations of a vehicle (#24) during an accident, the vehicle having an electronic control unit (#20) and an accelerometer (#16) electrically communicating with the control unit (best seen in figure 1), and the method comprising sensing an output signal from the accelerometer, comparing the output signal with a preset threshold level, and if the output signal exceeds the preset threshold, then sending out a warning signal (column 3, lines 39-46). The accelerometer outputs a

signal that is indicative of a deceleration/acceleration rate of the vehicle (column 4, lines 2-7) and the preset threshold level generally corresponds to a rate of deceleration/acceleration greater than that encountered during a panic braking operation (column 5, lines 5-20). It would have been obvious to one skilled in the art at the time that the invention was made to modify the accelerometer of Sasaki such that it comprised an output signal indicative of a deceleration rate and a corresponding preset threshold level as claimed in view of the teachings of Carlson et al. so as to provide a sensor system that indicates when excessive acceleration or deceleration, and thus an unsafe driving condition, is occurring (Carlson et al.: column 3, lines 32-52).

12. Claims 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki (5,033,428) in view of Saito et al. (5,758,301), further in view of Bohn (6,336,648), and further in view of Tzanev (6,268,794), further in view of Schiffmann (6,192,305). In regards to claims 22-24, Sasaki does not disclose the use of a correction reading or an electrically erasable programmable read-only memory (EEPROM). Schiffmann teaches a method of controlling operations of a vehicle during an accident, the vehicle having an electronic control unit (#22) and accelerometers (#12-20) electrically communicating with the control unit (column 5, lines 3-4), the method comprising sensing an output signal from the accelerometers, comparing the output signal with a preset threshold level, and if the output signal exceeds the preset threshold level, then providing a signal indicating a vehicle overturn condition (column 2, lines 16-26). Associated with the electronic control unit is an EEPROM (#24) that stores

various programmed calibrations for performing the rollover sensing algorithm (column 4, lines 54-59). Although not specifically disclosed, it is old and well known in the art that the process of calibrating any system for an apparatus involves placing the system in test mode, placing the apparatus in a neutral state or position, obtaining a corrected reading for the apparatus, storing the corrected reading, and adjusting a current reading based on the calibrated corrected reading. It would have been obvious to one skilled in the art at the time that the invention was made to modify the method of controlling operations of a vehicle during an accident of Sasaki such that it comprised an EEPROM and test mode as claimed in view of the teachings of Schiffmann so as to store calibration values for accurately determining if/when a vehicle rollover will occur (Schiffmann: column 4, lines 54-58).

Allowable Subject Matter

13. Claims 7-9, 25, 26, 29, 30-32, and 36 are allowed.

14. Claim 35 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Response to Arguments

15. In regards to applicant's arguments on page 9, the amendment to claim 35 in order to overcome the 35 U.S.C. 112, 2nd paragraph rejection was not included in the amendment dated 07 September 2004.

16. Applicant's arguments filed 07 September 2004 have been fully considered but they are not persuasive.

In regards to claims 1 and 2, the applicant has indicated that column 5 of the Tzanev reference teaches that the centrifugal forces counter act the gravitational forces acting on the vehicle while the vehicle is in "steady state motion", such as traveling around a curve at a constant speed. However, the applicant did not point out the next two sentences, which read:

> "When the vehicle changes attitude or orientation, however, lateral forces acting on the vehicle are not fully cancelled by the centrifugal forces acting on the vehicle. Thus, the [accelerometer] senses such changes as they occur".

Thus, the accelerometer is able to output an output signal that varies with a leaning angle of the motorcycle when turning. Further, the Bohn reference is being relied upon for its teaching of a biaxial accelerometer, not for its teaching of other features of the applicant's claimed invention.

In regards to claims 4 and 5, the applicant has indicated that the threshold signal in the Bosch reference is not a "collision threshold signal". As read in its broadest sense, a "collision threshold signal" is a signal that is intended to indicate a collision threshold, which leads to the intended use of the signal. Further, a signal that comes from a rollover sensor can be a type of "collision threshold signal" because it determines or predicts a rollover, which can involve the collision of a top portion of the vehicle with the ground. Thus, Bosch discloses a "collision threshold signal".

17. Applicant's arguments with respect to claims 13, 20, and 21 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura B Rosenberg whose telephone number is (703) 305-3135. The examiner can normally be reached on Monday-Friday 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Dickson can be reached on (703) 308-2089. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Laura B. Rosenberg

Laura B Rosenberg
Patent Examiner
Art Unit 3616

LBR

11/22/04

PAUL N. DICKSON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600